

ABSTRACT

[0027] The present invention relates to a method of manufacturing a flash memory device. In a flash memory device formed by applying a self-align shallow trench isolation (SA-STI) scheme, a polishing process and a process for removing a nitride film are performed after oxide materials are buried in isolation trenches. Then, oxide films with an excellent planarization are formed, a first etching process is performed to selectively remove the oxide films in a low voltage transistor/cell area to a certain thickness, a second etching process is performed to remove the oxide films in a high voltage transistor area and the low voltage transistor/cell area until a poly-silicon layer for a floating gate is exposed. Therefore, protruding portions of element isolation films in the high voltage transistor area and the low voltage transistor/cell area are etched away to a certain thickness during the first and second etching processes so that a difference in EFH's between these areas can be reduced.